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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,156	04/08/2004	Ko-Pin Chang	24061.83 (TSMC2003-0893)	9194
42717	7590	08/22/2006	EXAMINER	
HAYNES AND BOONE, LLP 901 MAIN STREET, SUITE 3100 DALLAS, TX 75202			VON BUHR, MARIA N	
			ART UNIT	PAPER NUMBER
			2125	

DATE MAILED: 08/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/821,156

Applicant(s)

CHANG ET AL.

Examiner

M.N. Von Buhr

Art Unit

2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 25-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 25-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Examiner acknowledges receipt of Applicant's response to the previous Office action, received 07 June 2006; which amends claims 6 and 7. Claims 1-22 and 25-29 remain pending in this application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. In response to Applicant's amendment and remarks, concerning the 35 U.S.C. §103(a) rejection of claims 1, 6, 9-11, 16, 19, 21 and 29, as being unpatentable over Hanak (U.S. Patent No. 4,593,644), Examiner notes the following:

a. As presented in the previous Office action, Hanak discloses a "continuous, in-line deposition system ... for coating large substrates. The apparatus includes load-lock chambers for loading and unloading substrates arranged in carriers" (the abstract), wherein substrates on a carrier are loaded into processing chambers for deposition, through a cavity 40 and a subchamber 44 used as a buffer compartment (analogous to the instantly claimed "stocker"), in which gas purging is performed (see at least, Fig. 2, with associated text; col. 1, line 10 - col. 2, line 22; col. 7, lines 5-23; col. 9, lines 17-23 and 53-56). As per the limitation "a plurality of process tools each in communication with the operating control system," Hanak teaches a plurality of subchambers, each performing a different function, all under control of the operating control system (see, at least, col. 9, line 50 - col. 10, line 43). Further, as per the limitation "a process intermediate station ... that is not integral to any of the plurality of process tools," Examiner notes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to separate the stations/tools/chambers/subchambers, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

b. Applicant argues that "the Hanak subchamber 44 is not analogous to the instantly claimed stocker because the subchamber 44 is explicitly integral to the other process tools, whereas claim 1 of the present application explicitly requires the stocker to not be integral to the other process tools" (or similar language, throughout pages 6-8 of the instant response). This argument is not persuasive, because Applicant previously presented this same argument and has ignored Examiner's response thereto; repeated above, namely that "it would have been obvious to one having ordinary skill in the art at the time the invention was made to separate the stations/tools/chambers/subchambers, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179." In other words, Applicant has not addressed this responsive argument, but has chosen instead to merely repeat the previously presented position. This cannot be considered to be persuasive.

c. Accordingly, claims 1, 6, 9-11, 16, 19, 21 and 29 stand rejected under 35 U.S.C. §103(a), as being unpatentable over Hanak (U.S. Patent No. 4,593,644).

4. As per the remainder of the dependent claims, Applicant relies on the above argument regarding Hanak, alone, without providing any additional arguments. Accordingly, since the above argument regarding Hanak has been found not to be persuasive, and no further arguments are presented with regard to any of these dependent claims, the rejections of the dependent claims stand, as repeated below.

5. Claims 2 and 18 stand rejected under 35 U.S.C. §103(a), as being unpatentable over Hanak (U.S. Patent No. 4,593,644), as applied to claims 1 and 16 above, further in view of Wehrung et al. (U.S. Patent Application Publication No. 2002/0164242).

As presented in the previous Office action, Wehrung et al. disclose a “control system for transferring and buffering material in a material transport system. A transport system and method for moving an article between a conveyor and a workstation. A robot works in conjunction with transportation buffer control system to move Pods between storage shelves, load ports and I/O ports without intervention of the material handling controller. The robots include vertical movement mechanisms and horizontal movement mechanisms together with gripping devices to handle the Pods. Movement of Pods between storage shelves, load ports and I/O ports is seen as a single activity by the material control system” (the abstract), including the well-known use of various transfer carriers and MCS in a semiconductor fabrication facility (see at least, paragraph 0017). It would have been obvious, to one having ordinary skill in the art, at the time the instant invention was made, to utilize such transfer carriers in the system of Hanak, because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

6. Claims 3-5, 12-15, 17 and 25-28 stand rejected under 35 U.S.C. §103(a), as being unpatentable over Hanak (U.S. Patent No. 4,593,644), as applied to claims 1, 11 and 16 above, further in view of Pasadyn et al. (U.S. Patent No. 6,678,570).

As presented in the previous Office action, Pasadyn et al. disclose a “method for determining output characteristics of a workpiece includes generating a tool state trace related to the processing of a workpiece in a tool; comparing the generated tool state trace to a library of reference tool state traces, each reference tool state trace having an output characteristic metric; selecting a reference tool state trace closest to the generated tool state trace; and determining an output characteristic of the workpiece based on the output characteristic metric associated with the selected reference tool state trace. A manufacturing system includes a tool and a tool state monitor. The tool is adapted to process a workpiece. The tool state monitor is adapted

to generate a tool state trace related to the processing of a workpiece in the tool, compare the generated tool state trace to a library of reference tool state traces, each reference tool state trace having an output characteristic metric, select a reference tool state trace closest to the generated tool state trace, and determine an output characteristic of the workpiece based on the output characteristic metric associated with the selected reference tool state trace” (the abstract), in a semiconductor fabrication facility, including the well-known use of MES to schedule processes using various identification elements (see at least, col. 1, line 28 - col. 2, line 25; col. 3, line 54 - col. 4, line 34). It would have been obvious, to one having ordinary skill in the art, at the time the instant invention was made, to utilize such an operating system in the system of Hanak, because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

7. Claims 7, 8, 20 and 22 stand rejected under 35 U.S.C. §103(a), as being unpatentable over Hanak (U.S. Patent No. 4,593,644), as applied to claims 1 and 16 above, further in view of Chen et al. (U.S. Patent No. 6,821,891).

As presented in the previous Office action, Chen et al. does not specifically provide for either a stocker or OHB as one of the devices. However, in this regard, Chen et al. does specify that the “processing chamber 200 may be integrated into an integrated processing platform, such as an EnduraTM platform also available from Applied Materials, Inc.” (col. 5, lines 11-14), details of which were incorporated by reference. Such a platform inherently utilizes transfer stations, such as stockers, buffers and FOUPs (see for example, Vepa et al. (U.S. Patent Application Publication No. 2001/0027082 and U.S. Patent No. 6,852,012), Jevtic et al. (U.S. Patent Nos. 6,519,498 and 6,224,638) and Venkatesh et al. (U.S. Patent No. 6,074,443); all previously cited). Therefore, Chen et al. inherently provides for the presence of such transfer stations in a semiconductor manufacturing line. It would have been obvious, to one having ordinary skill in the art, at the time the instant invention was made, to utilize such elements in the system of Hanak, because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

8. In response to Applicant’s amendment and remarks, concerning the 35 U.S.C. §102(b) rejection of claims 1, 6, 9-11, 16, 19, 21 and 29, as being anticipated by Yamashita et al. (U.S. Patent No. 5,746,008), Examiner notes the following:

a. As presented in the previous Office action, Yamashita et al. disclose at least “an electronic substrate processing system comprising a processing equipment for processing electronic substrates including semiconductor wafers and liquid crystal substrates; a cleaning equipment for cleaning said

electronic substrate in a predetermined processing step; a portable closed container for accommodating a cassette containing said electronic substrate; a purging station for gas-purging said portable closed containers; and a storage member for storing said portable closed containers, wherein said cassette accommodates said electronic substrates which have been cleaned by said cleaning equipment being set in said portable closed container and purged with an inert gas in said purging station, and said portable closed container or containers is stored in said storing section when necessary” (the abstract), wherein “in FIG. 1, reference numeral 100 designates a film forming deposition system arranged in a clean room; 200, a wafer cleaning device; 300, a purging station; 400, a clean stocker; 500, a transfer robot on which a product placing device is mounted; and 30, a portable closed container” (col. 4, lines 1-5), “in the above-described purging stations, the container storing section 1C is provided for empty containers; however, it may be used for storing the containers gas-purged; that is, it may be used as a container clean stocker” (col. 8, lines 8-14) and “in the above-described embodiment, the purging station is separate from the cleaning equipment” (col. 8, lines 31-33).

b. Applicant argues that “these portions of Yamashita collectively fail to disclose: • an operating control system; • a plurality of process tools each in communication with the operating control system; • a process intermediate station in communication with the operating control system, wherein the process intermediate station is one of a stocker and an overhead buffer (OHB) that is not integral to any of the plurality of process tools; and • a gas purge device, wherein the gas purge device is included in the process intermediate station” (page 10 of the instant response). This argument is not persuasive.

c. Examiner notes that the prior art reference is a teaching in its totality, not just its cited portions, which Examiner indicated only in order to highlight certain features/aspects. In other words, there is no requirement that only the cited portions of a prior art reference teach all the features instantly claimed. The reference must be looked at as a whole.

d. With this in mind, each of the features indicated by Applicant are taught by Yamashita et al. as follows: (1) “an operating control system” is inherent to the system of Yamashita et al., because Yamashita et al. discloses “an electronic substrate processing system” (col. 1, lines 62-63), and all “processing systems” have an operating/control system, else they would be inoperable; (2) “a plurality of process tools each in communication with the operating control system” is taught by Yamashita et al. disclosing that the “electronic substrate processing system comprises a processing equipment for processing electronic substrates including semiconductor wafers and liquid crystal substrates; a cleaning equipment for cleaning said electronic substrate in a predetermined processing step; a portable closed container for accommodating a cassette containing said electronic substrate; a purging station for gas-purging said portable closed containers; and a storage member for storing said portable closed containers, wherein said cassette

accommodates said electronic substrates which have been cleaned by said cleaning equipment being set in said portable closed container and purged with an inert gas in said purging station, and said portable closed container or containers is stored in said storing section when necessary” (col. 1, line 62 - col. 2, line 9), wherein the instantly claimed “process tools” are analogous to at least the processing equipment and cleaning equipment of Yamashita et al., see also Fig. 1, wherein 100 is a film deposition station, 200 is a wafer cleaning station, etc.; and (3) “a process intermediate station in communication with the operating control system, wherein the process intermediate station is one of a stocker and an overhead buffer (OHB) that is not integral to any of the plurality of process tools” and “a gas purge device, wherein the gas purge device is included in the process intermediate station” is taught by Yamashita et al. disclosing a container clean stocker “for storing the containers gas purged” (col. 8, lines 8-14), wherein “the purging station is separate from the cleaning equipment” (col. 8, lines 31-35).

e. Accordingly, claims 1, 6, 9-11, 16, 19, 21 and 29 stand rejected under 35 U.S.C. §102(b), as being anticipated by Yamashita et al. (U.S. Patent No. 5,746,008).

9. As per the remainder of the dependent claims, Applicant relies on the above argument regarding Yamashita et al., alone, without providing any additional arguments. Accordingly, since the above argument regarding Yamashita et al. has been found not to be persuasive, and no further arguments are presented with regard to any of these dependent claims, the rejections of the dependent claims stand, as repeated below.

10. Claims 2 and 18 stand rejected under 35 U.S.C. §103(a), as being unpatentable over Yamashita et al. (U.S. Patent No. 5,746,008), as applied to claims 1 and 16 above, further in view of Wehrung et al. (U.S. Patent Application Publication No. 2002/0164242).

As presented in the previous Office action, Wehrung et al. disclose a “control system for transferring and buffering material in a material transport system. A transport system and method for moving an article between a conveyor and a workstation. A robot works in conjunction with transportation buffer control system to move Pods between storage shelves, load ports and I/O ports without intervention of the material handling controller. The robots include vertical movement mechanisms and horizontal movement mechanisms together with gripping devices to handle the Pods. Movement of Pods between storage shelves, load ports and I/O ports is seen as a single activity by the material control system” (the abstract), including the well-known use of various transfer carriers and MCS in a semiconductor fabrication facility (see at least, paragraph 0017). It would have been obvious, to one having ordinary skill in the art, at the time the instant invention was made, to utilize such transfer carriers in the system of Yamashita et al., because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

11. Claims 3-5, 12-15, 17 and 25-28 stand rejected under 35 U.S.C. §103(a), as being unpatentable over Yamashita et al. (U.S. Patent No. 5,746,008), as applied to claims 1, 11 and 16 above, further in view of Pasadyn et al. (U.S. Patent No. 6,678,570).

As presented in the previous Office action, Pasadyn et al. disclose a “method for determining output characteristics of a workpiece includes generating a tool state trace related to the processing of a workpiece in a tool; comparing the generated tool state trace to a library of reference tool state traces, each reference tool state trace having an output characteristic metric; selecting a reference tool state trace closest to the generated tool state trace; and determining an output characteristic of the workpiece based on the output characteristic metric associated with the selected reference tool state trace. A manufacturing system includes a tool and a tool state monitor. The tool is adapted to process a workpiece. The tool state monitor is adapted to generate a tool state trace related to the processing of a workpiece in the tool, compare the generated tool state trace to a library of reference tool state traces, each reference tool state trace having an output characteristic metric, select a reference tool state trace closest to the generated tool state trace, and determine an output characteristic of the workpiece based on the output characteristic metric associated with the selected reference tool state trace” (the abstract), in a semiconductor fabrication facility, including the well-known use of MES to schedule processes using various identification elements (see at least, col. 1, line 28 - col. 2, line 25; col. 3, line 54 - col. 4, line 34). It would have been obvious, to one having ordinary skill in the art, at the time the instant invention was made, to utilize such an operating system in the system of Yamashita et al., because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

12. Claims 7, 8, 20 and 22 stand rejected under 35 U.S.C. §103(a), as being unpatentable over Yamashita et al. (U.S. Patent No. 5,746,008), as applied to claims 1 and 16 above, further in view of Chen et al. (U.S. Patent No. 6,821,891).

As presented in the previous Office action, Chen et al. does not specifically provide for either a stocker or OHB as one of the devices. However, in this regard, Chen et al. does specify that the “processing chamber 200 may be integrated into an integrated processing platform, such as an Endura™ platform also available from Applied Materials, Inc.” (col. 5, lines 11-14), details of which were incorporated by reference. Such a platform inherently utilizes transfer stations, such as stockers, buffers and FOUPs (see for example, Vepa et al. (U.S. Patent Application Publication No. 2001/0027082 and U.S. Patent No. 6,852,012), Jevtic et al. (U.S. Patent Nos. 6,519,498 and 6,224,638) and Venkatesh et al. (U.S. Patent No. 6,074,443); all previously cited). Therefore, Chen et al. inherently provides for the presence of such transfer stations in a semiconductor manufacturing line. It would have been obvious, to one having ordinary skill in the art, at the time the instant

invention was made, to utilize such elements in the system of Yamashita et al., because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. §103(a), Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR §1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for Examiner to consider the applicability of 35 U.S.C. §103(c) and potential 35 U.S.C. §102(e), (f) or (g) prior art under 35 U.S.C. §103(a).

14. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR §1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR §1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M.N. Von Buhr whose telephone number is 571-272-3755. The examiner can normally be reached on M-F (9am-5pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



M.N. Von Buhr
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